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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,345	10/23/2001	Joshua I. Pine	00CXT0434I	4259
20594	7590	11/04/2004	EXAMINER	
CHRISTOPHER J. ROURK AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P. P O BOX 688 DALLAS, TX 75313-0688			ELDER, JEREMY RYAN	
			ART UNIT	PAPER NUMBER
			2612	

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/072,345	<b>Applicant(s)</b> PINE, JOSHUA I.	
	<b>Examiner</b> Jeremy R. Elder	<b>Art Unit</b> 2612	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 October 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application:
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 3 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen (US #6,552,744).

3. Regarding claim 1, Chen discloses capturing two or more images each image captured in a successive time interval corresponding to an image capture and storage rate of the imaging array (col. 5, lines 9-16).

Chen discloses correlating pixels of each image to the pixels of the other images (col. 5, lines 42-59). Chen also discloses combining the correlated pixels of the two or more selected images into a single enhanced image (panoramic image 41) (col. 5, lines 32-35).

4. Regarding claim 3, Chen discloses the use of a CCD (col. 3, lines 3-11).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US #6,552,744) as applied to claim 1 above, and further in view of Howell (US #6,570,613).

Chen does not disclose the interpolating values between the pixels of the combined images.

However, Howell teaches of creating new pixel values by interpolating values between the corresponding pixels of the combined images (col. 10, lines 13-39 and fig 13C).

It would have been obvious to one of ordinary skill in the art at the time of invention to interpolate pixel values as taught by Howell in the overlapping portions of Chen for the benefit of smoothing the transition in the overlapped portions of the composite image.

7. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US #6,552,744).

Regarding claims 4 and 5, Chen explains that any type of image sensor can be used in his invention (col. 3, lines 3-11).

Official notice is taken that a CMOS or silicon germanium sensor can be implemented in place of the previously claimed CCD.

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute an image sensor of a different type in place of the described CCD for the benefit of creating a camera that takes advantage of the benefits of other sensors such as the superior power efficiency of CMOS over CCD.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US #6,552,744) as applied to claim 1 above, and further in view of Okada et al (US #6,727,954).

Chen does not disclose a specific time interval for capturing of successive images.

However, Okada et al. disclose a camera and image processing system where three successive images are captured at intervals of 100 milliseconds (col. 5, lines 46-50).

It would have been obvious to one of ordinary skill in the art at the time of invention to specify in the system of Chen a time interval of 100 milliseconds for the

benefit of defining small time intervals to eliminate blurring in combining the images.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US #6,552,744) as applied to claim 1 above, and further in view of Sayag (US #5,585,847).

Chen does not disclose the use of a monochrome imaging array.

However, Sayag discloses a technique for color imaging using a monochrome full-frame CCD imager (col. 3, lines 7-11).

It would have been obvious to one of ordinary skill in the art at the time of invention to use Sayag's method of color capture using a monochrome image sensor, which is less costly than a color image sensor in the system of Chen for the benefit of creating an image-capturing device with lower cost.

10. Claims 8-10, 12-16, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US #2002/0126209) in view of Chen (US #6,552,744)

11. Regarding claim 8, Yamada et al. disclose an image pickup apparatus that captures 2 images and combines them in memory (par. 0028). They show the

image-capturing device transferring a signal from a CCD 2 through an A/D converter 3 to image memory 4 (fig. 1).

Yamada et al. also disclose that the images are stored in the memory 4 (par. 0074).

The combined, or enhanced, image is output from memory 4 to signal processing section 9 (par. 0077).

However, Yamada et al. do not disclose correlating the images.

Chen discloses correlating pixels of each image to the pixels of the other images (col. 5, lines 42-59).

Chen also discloses combining the correlated pixels of the two or more selected images into a single enhanced image (panoramic image 41) (col. 5, lines 32-35).

It would have been obvious to one of ordinary skill in the art at the time of invention to use the correlation methods of Chen in the system of Yamada et al. for the benefit of automatically lining up the images efficiently resulting in seamless panoramic images.

12. Regarding claim 9, the driving section 6 controls the shift mechanism in the optical system. A signal is also sent from drive 6 to the CCD 2 (fig. 1). At a predetermined time the drive mechanism is moved and another image is captured. That image signal is sent through the A/D converter 3 and on to the image memory 4 (par. 72 and fig. 1).



13. Regarding claim 10, Yamada et al. disclose that the synchronous-signal generator 7 determines when images are required from the imaging array. They further explain that the driving section 6 generates a signal when the determining means (synchronous-signal generator 7) determines that another image is required (par. 75).

14. Regarding claim 12, Yamada et al. disclose the use of CCD 2 (fig. 1).

15. Regarding claim 13, Yamada et al. do not disclose the use of an image sensor other than a CCD.

Chen explains that any type of image sensor can be used in his invention (col. 3, lines 3-11).

Official notice is taken that a CMOS or silicon germanium sensor can be implemented in place of the previously claimed CCD.

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute an image sensor of a different type in place of the described CCD for the benefit of creating a camera that takes advantage of the benefits of other sensors such as the superior power efficiency of CMOS over CCD.

16. Regarding claim 14, Yamada et al. disclose an enhanced image where the two images used in combination are monochrome images (par. 0008 and fig. 32).

17. Regarding claim 15, Yamada et al. disclose a digital camera with an imaging array (par. 78).

Yamada et al. also disclose a memory for storing two or more images transmitted from the imaging array (par. 74).

However, Yamada et al. do not disclose correlating the images.

Chen discloses correlating pixels of each image to the pixels of the other images (col. 5, lines 42-59).

Chen also discloses combining the correlated pixels of the two or more selected images into a single enhanced image (panoramic image 41) (col. 5, lines 32-35).

It would have been obvious to one of ordinary skill in the art at the time of invention to use the correlation methods of Chen in the system of Yamada et al. for the benefit of automatically lining up the images efficiently resulting in seamless panoramic images.

18. Regarding claim 16, see claim 9.

19. Regarding claim 18, see claim 12.

20. Regarding claim 19, see claim 13.

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21. Claims 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US #2002/0126209) and Chen (US #6,552,744) as applied to claims 8 and 15 above, and further in view of Okada et al (US #6,727,954).

Neither Yamada et al. nor Chen disclose a specific time interval for capturing of successive images.

However, Okada et al. disclose a camera and image processing system where three successive images are captured at intervals of 100 milliseconds (col. 5, lines 46-50).

It would have been obvious to one of ordinary skill in the art at the time of invention to specify in the system of Chen and Yamada et al. a time interval of 100 milliseconds for the benefit of defining small time intervals to eliminate blurring in combining the images.

22. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US #2002/0126209) and Chen (US #6,552,744) as applied to claim 15 above, and further in view of Sayag (US #5,585,847).

Neither Yamada et al. nor Chen disclose the use of a monochrome imaging array.

However, Sayag discloses a technique for color imaging using a monochrome full-frame CCD imager.

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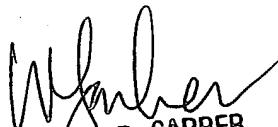
It would have been obvious to one of ordinary skill in the art at the time of invention to use Sayag's method of color capture using a monochrome image sensor, which is less costly than a color image sensor in the system of Chen for the benefit of creating an image-capturing device with lower cost.

### ***Conclusion***

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy R. Elder whose telephone number is (703) 305-4693. The examiner can normally be reached on M-F 800-430.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R. Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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